

***Election/Restrictions***

This application is in condition for allowance except for the presence of claims 21-37 directed to species II & III non-elected without traverse. Accordingly, claims 21-37 been cancelled.

***Examiner's Amendment***

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with *Daniel Gibson on May 01, 2008.*

The following changes have been made to the subject application:

Claims 6, 10 and non-elected claims 21-37 have been canceled, and claims 1-5, 7-9, 11-20, and 38-41 have been changed as follows:

1. (Currently Amended) An antenna system, comprising a dielectric resonator ~~antenna~~, and means for simultaneously supplying an electrical signal to first and second points in the dielectric resonator ~~antenna~~, with a phase difference between said first and second points, such that the first point couples to a desired mode of the dielectric resonator antenna and the second points couples to the desired mode of the dielectric resonator ~~antenna~~ and such that a frequency response of the resonator antenna has two nulls in a return loss characteristic of the frequency response, wherein the means for supplying an electrical signal comprise an electrical feed line, a first pad connected to a surface of the dielectric resonator, and a second pad connected to said surface of the dielectric resonator, and further comprising a microstrip line connecting the first and second pads.

2. (Currently Amended) An antenna system as claimed in claim 1, wherein ~~the means for supplying an electrical signal comprises an electrical feed line, and~~ the dielectric resonator ~~antenna material~~ comprises slots to allow a magnetic field generated around the electrical feed line to couple into the dielectric resonator ~~antenna~~.

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3. (Currently Amended) An antenna system as claimed in claim 2, wherein the electrical feed line comprises a first path leading to a first slot in the dielectric resonator ~~antenna~~, and a second path leading to a second slot in the dielectric resonator ~~antenna~~.

4. (Currently Amended) An antenna system as claimed in claim 3, wherein the first path terminates underneath the first slot in the dielectric resonator ~~antenna~~, and the second path terminates underneath the second slot in the dielectric resonator ~~antenna~~.

5. (Original) An antenna system as claimed in claim 1, wherein the means for supplying an electrical signal comprise probes.

6. (Canceled)

7. (Previously Presented) An antenna system as claimed in claim 1, comprising means for supplying the electrical signal to the first and second points with a phase difference in the range of  $140^{\circ}$  -  $220^{\circ}$  therebetween.

8. (Currently Amended) An antenna system as claimed in claim 1, comprising means for supplying the electrical signal to the first and second points with a phase difference therebetween, such that a frequency response of the antenna system has two nulls in its return loss characteristic, spaced such that an operating bandwidth of the antenna system is effectively broadened.

9. (Previously Presented) An antenna system as claimed in claim 1, comprising means for supplying the electrical signal to the first and second points with a phase difference therebetween, such that a frequency response of the antenna system has two nulls in its return loss characteristic, spaced such that the antenna system operates as a dual band antenna.

10. (Canceled)

11. (Currently Amended) An antenna system as claimed in claim [10]1, wherein the first pad is connected to the surface of the dielectric resonator ~~antenna~~ at a first end region thereof.

12. (Currently Amended) An antenna system as claimed in claim 11, wherein the second pad is connected to the surface of the dielectric resonator ~~antenna~~ at a second end region thereof, opposite the first end region.

13. (Currently Amended) An antenna system as claimed in claim 11, wherein the second pad is connected to the

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surface of the dielectric resonator system at a second region thereof, the position of the second region being chosen such that a desired HEM mode is excited.

14. (Previously Presented) An antenna system as claimed in claim 1, comprising a tuning screw located adjacent the dielectric resonator.

15. (Currently Amended) An antenna system as claimed in claim [6]1 further comprising at least one additional pad located underneath said surface of the dielectric resonator system to provide support therefor.

16. (Currently Amended) An antenna system as claimed in claim 1, wherein the first and second points each couple to a HEM mode of the dielectric resonator ~~antenna~~.

17. (Currently Amended) An antenna system as claimed in claim 16, wherein the first and second points in the dielectric resonator ~~antenna~~ are chosen such that a higher order HEM mode is excited, and such that the antenna effectively forms a solid dielectric array.

18. (Currently Amended) An antenna system as claimed in claim 17, wherein an end face of the dielectric resonator ~~antenna~~ acts as a mirror.

19. (Currently Amended) An antenna system as claimed in claim 18, wherein said end face of the dielectric resonator ~~antenna~~ is coated with an electrical conductor.

20. (Currently Amended) An antenna system as claimed in claim 18, wherein said end face of the dielectric resonator ~~antenna~~ is coated with a metal.

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Canceled)

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33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (Currently Amended) A method of operation of an antenna system, comprising a dielectric resonator ~~antenna~~, the method comprising simultaneously supplying an electrical signal to first and second points in the dielectric resonator ~~antenna~~, with a phase difference between said first and second points, such that the first point couples to a desired mode of the dielectric resonator ~~antenna~~ and the second points couples to the desired mode of the dielectric resonator ~~antenna~~, and such that a frequency response of the antenna system has two nulls in a return loss characteristic of the frequency response; wherein supplying an electrical signal comprise supplying the signal through an electrical feed line, connecting a first pad to a surface of the dielectric resonator, and connecting a second pad to said surface of the dielectric resonator, and further connecting the first and second pads with a microstrip line.

39. (Currently Amended) A method as claimed in claim 38, comprising coupling the electrical signal[s] to the electric field in the dielectric resonator ~~material~~.

40. (Currently Amended) A method as claimed in claim 38, comprising coupling the electrical signal[s] to the magnetic field in the dielectric resonator ~~material~~.

41. (Previously Presented) A method as claimed in claim 38, comprising supplying the electrical signal to the first and second points with a phase difference in the range of 140° - 220° therebetween.

The Examiner's amendment has been made to clarify the claimed languages and to overcome the cited art of record in order to place the application in a condition for allowance.

### ***Reasons for Allowance***

1. Claims 1-5, 7-9, 11-20 and 38-41 are presently allowed.
2. The following is an examiner's statement of reasons for allowance:

The cited art of record fails to teach an apparatus/a method for an antenna system, comprising a dielectric resonator, and means comprise an electrical feed line, a first pad

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connected to a surface of the dielectric resonator, and a second pad connected to said surface of the dielectric resonator, and further comprising a microstrip line connecting the first and second pads for simultaneously supplying an electrical signal to first and second points in the dielectric resonator, with a phase difference between said first and second points, such that the first and second points couples to a same desired mode of the dielectric resonator antenna and such that a frequency response of the resonator has two nulls in a return loss characteristic of the frequency response as defined in claims 1 and 38.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Inquiry***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens, can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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*May 01, 2008*

*/Trinh Vo Dinh/*

*Primary Examiner, Art Unit 2821*